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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/553,088	10/11/2005	Shigetoshi Miyama	10873.1773USWO	6631

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HAMRE, SCHUMANN, MUELLER & LARSON, P.C.
P.O. BOX 2902
MINNEAPOLIS, MN 55402-0902

EXAMINER	
TOSCANO, ALICIA	

ART UNIT	PAPER NUMBER
1712	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/553,088	MIYAMA ET AL.	
	Examiner	Art Unit	
	Alicia M. Toscano	1712	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on 6/22/07.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-13 and 25 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-13 and 25 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18, 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otomo (JP 2003213122) in view of Sakakibara (US 5112903).

Otomo discloses PET resin compositions. Said compositions comprise 100 wt pts recycled PET, 3-60 wt parts polyolefin, 2-80 wt parts block copolymer and 150 wt parts olefin containing copolymer (abstract). The polyolefin may be a homopolymer of ethylene and the like [0019], the block copolymer may be a styrene-ethylene-propylene [0025], meeting the compatibilizer compositional requirements in applicants specification (pgs 9-10). It is the Examiners position that recycled PET resin inherently comprises water since it is washed prior to use [0018].

Otomo discloses the use of plasticizers in [0041]. Otomo does not disclose what plasticizers are used or when they are added. Sakakibara discloses resin compositions. Said compositions may comprise the polymers of Otomo such as polyolefin elastomers, polyethylene, polypropylene and polyethylene terephthalate (Column 3 lines 12-40). Sakakibara further discloses the inclusion of plasticizers, such as water, while kneading (Column 14 lines 6-9).

Regarding the teaching in Sakaibara of blending any 2 or more genus's from the long list of options, it has been decided by the courts that a prior art reference which

teaches a genus of which claims at issue are species and which instructs one of ordinary skill in the art that any of the reference disclosed species will work is sufficient to render the claims prima facie obvious, even though the prior art does not teach that the claimed species is preferred. See Merck and Co. Inc. v. Biocraft Laboratories Inc., 874 F.2d 804, 10 USPQ2d 1843 (Fed Cir 1989) and In re Susi, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Otomo the use of water during kneading, as taught by Sakakibara, in order to introduce water as a plasticizer into the composition since one would have a reasonable expectation of success. Thusly Otomo and Sakakibara meet the limitations set forth in Claim 1.

Predrying of the PET resin before kneading is not necessary, as stated by Otomo in [0018]. Kneading of all the components together is disclosed in [0037], as required by Claims 1, 2, 3, 4, 5, 6, 7, 8 are met. The use of the 150 wt parts olefin containing copolymer meets the additive requirement of Claim 11. Other additives such as glass fibers, talc, mica, plasticizers, foaming agents and the like are disclosed in [0041], as required by Claims 9, 10 and 18. The composition, as discussed above, contains moisture prior to kneading, as required by Claim 12 It is the examiners position that since the recycled PET of both Otomo and Applicants is obtained from recycling old beverage containers ([0018] of Otomo and pg 25, product A2 of Applicants) the moisture content of Otomo is inherently within the range required by Applicants Claim 13. The mixing sequence during kneading of the above components are not limited

[0037], it is the Examiners position that the mixing sequence inherently refers to the addition of components while kneading, as required by Claim 15.

Regarding Claim 16, Otomo discloses the use of any amount generally used [0041] and Sakakibara discloses the use of any amount (Column 14 lines 8-9) of plasticizer in the composition. Where the general conditions of a claim are disclosed in the prior art it is not inventive to discover the optimum or workable ranges by routine experimentation, In re Aller 105 USPQ 233, 235 (CCPA 1955). Thusly, it would have been obvious to add 0.01 to 20 parts by weight of water to the kneading composition, as required by Claim 16.

Kneading occurs at a temperature of 150C+, thus the water in the resin is inherently heated to a temperature of 40C or more, as required by Claim 17. Pertaining specifically to claims 22 and 25, the composition and the product are viewed as product-by-process claims and hence the methods they are created by are not pertinent, unless applicant can show a different product is produced. Otomo and Sakakihara meet the compositional requirements and thusly meet the limitations of the Claims.

2. Claims 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 15, 17, 18, 22 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakakibara in view of Otomo.

Sakakibara discloses blends of various polymers including polyolefin elastomers, polyethylene, polypropylene and polyethylene terephthalate which can be blended in any combination (Column 3 Lines 10-45). Sakakibara further discloses blending the composition with a plasticizer such as water during kneading (Column 14 lines 6-9).

Sakakibara does not disclose the specific blend of a polyester, a polyolefin and a compatibilizer required in Claim 1.

Otomo discloses regenerated PET resin compositions, as set forth above. The composition as discussed meets the compositional limitations of the above Claims. Otomo discloses said composition to have excellent molding and mechanical properties for a composition which comprises regenerated PET.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Sakakibara the use of the composition of Otomo in order to create a composition which has superior molding and mechanical properties.

Pertaining specifically to claims 22 and 25, the composition and the product are viewed as product-by-process claims and hence the methods they are created by are not pertinent, unless applicant can show a different product is produced. Otomo and Sakakihara meet the compositional requirements and thusly meet the limitations of the Claims.

3. Claims 19, 21, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Otomo and Sakakibara or Sakakibara and Otomo in view of Taguchi (JP 2000-052408).

Otomo and Sakakibara include elements of the invention as discussed above. Otomo includes the use of a foaming agent and the use of moisture in his thermoplastic resin but does not disclose foaming by being kneaded in the presence of moisture, as

required by Claim 19, the step of foaming by addition of a foaming agent after kneading, as required by Claim 21 or foam products, as required by Claims 23 and 24.

Taguchi discloses extruder and expansion molding methods for thermoplastic polyester resins. Said method includes utilizing carbon dioxide as a foaming agent and kneading the thermoplastic resin in an extruder (abstract). The extruder has separate sections 7 and 8 (see figure in abstract). Section 7 kneads only the thermoplastic resin and Section 8 kneads the thermoplastic resin with carbon dioxide in order to foam the resin (abstract). Foaming thermoplastics via this method uses lower pressure and less energy than typical foaming methods and also results in size uniformity within the cells of the foamed resin, yielding superior mechanical properties.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Otomo and Sakakibara or Sakakibara and Otomo the foaming method of foaming during kneading by the addition of a foaming agent after first kneading the thermoplastic alone, as taught by Taguchi, in order to reduce the cost of production while forming uniformly foamed thermoplastic resins which have superior mechanical properties. Use of the foaming method to create foam sheet, film and the like is disclosed in [0035] as required by Claims 23 and 24.

4. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Otomo and Sakakibara or Sakakibara and Otomo in view of Masadu (JP 2004-195685).

Otomo and Sakakibara include elements as discussed above. Otomo includes the use of a foaming agent but does not disclose methods of making a foamed product.

Masuda discloses methods for creating thermoplastic foamed sheets. Said method includes kneading the foaming agent with the thermoplastic resin and later foaming due to the pressure differential caused by extrusion of the highly pressurized resin into low (atmospheric) pressure (abstract). Said method results in fine diameter cells in the foam (abstract), resulting in superior mechanical properties.

It would have been obvious to one of ordinary skill in the art at the time of the invention to include in Otomo and Sakakibara or Sakibara and Otomo the use of foaming after kneading, as taught by Masadu, in order to create a foam with fine particle diameter cells, yielding a product with superior mechanical properties.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alicia M. Toscano whose telephone number is 571-272-2451. The examiner can normally be reached on Monday to Friday 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AMT

RANDY GULAKOWSKI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700